

MEMORANDUM

TO: CALFED Ecosystem Water Quality Sub-team-
 Steve Yaeger, Palma Risler, Carol Howe, Rick Woodard, Bruce
 Macler, Chris Foe, Jerry Bruns, Harry Rectenwald, Brian Finlayson, Steve
 Schwazback, Bill Bennett, Leo Winternitz, Bruce Thompson, Michael
 Carlin, Victor DeVlaming, Phyllis Fox

FROM: Ron Ott

DATE: August 5, 1996

SUBJECT: Minutes of Meeting
 CALFED Ecosystem Water Quality Sub-team
 Thursday, August 1

Sub-team members present: Steve Yaeger, Ron Ott, Palma Risler, Carol Howe, Rick Woodard, Chris Foe, Harry Rectenwald, Brian Finlayson, Steve Schwazback, Leo Winternitz, Bruce Thompson, Phyllis Fox, Michael Carlin
 Others present: Don Wagenet, Russ Brown

Steve Yaeger started the meeting off with introductions and a general description of the CALFED process. He then described the role and purpose of the water quality committee.

Ron Ott followed Steve with a review of the purpose of the ecosystem water quality sub-committee including the products (e.g. performance indicators and prioritization of actions) that the committee is expected to produce. Ron continued with a review of CALFED's ecosystem water quality problem statements and objectives and an explanation of the ecosystem water quality committee process flow chart. Ron stated that the goal of the first meeting was to cover the first two blocks on the flow chart (e.g. identify parameters of concern that have an impact on ecosystem water quality and identify whether actions address the parameters of concern).

The committee then focused on the parameters of concern identified in the BDOC Water Quality Technical Advisory Committee report and the worksheet - "Parameters of Concern and their Effect on Ecosystem Water Quality".

First the committee identified additional parameters of concern that were not on the list including oil & grease, settleable solids, metals named in the basin plans (e.g. boron, manganese, barium, cyanide, and iron) and unknowns. It was requested that methyl mercury (known to be produced from dredging operations) be distinguished separately.

Then the committee discussed the geographical extent of CALFED, specifically whether the San Francisco Bay was included in CALFED's scope. It was stated that if problems start in the Delta and continues into the Bay then solutions to the problems are part of CALFED. If problems start in the rivers but eventually cause problems in the Delta (such as mine drainage) solutions to the problems also are potentially part of CALFED.

Discussion focused on metals. A lengthy debate ensued over what metals were of actual concern to the ecosystem. Palma Risler (EPA) stated that the focus (e.g. biota, sediment & water column) should be on a preventative approach. She acknowledged that this would be hard to model but would need to be considered in a complete program. Harry Rectenwald expressed concern over how this process would impact numerical limits in the basin plans and whether we would maintain basin plan numbers as a minimum. The discussion ranged from including all metals, based on the possibility that they might be causing problems that we weren't aware of yet, to focusing on what was of known concern now then reassessing for impacts caused by the CALFED alternatives (i.e. possibility of dredging resuspending Hg).

Discussion continued on how metals might potentially be grouped and whether some metals could be surrogates for others. The committee went through the "Parameters of Concern and their Effect on Ecosystem Water Quality" worksheet and used their professional judgment and knowledge to identify metal sources, types of biota affected, and geographical areas of concern. The committee preliminary identified the primary metals of concern as cadmium, copper, mercury, selenium, and zinc. They identified geographical locations for parameters of concern as the rivers, Delta and Suisun Marsh. Committee members requested further time to review the worksheets with co-workers to identify additional concerns.

A short discussion of the worksheet "Proposed CALFED Water Quality Actions and Affected Parameters that Impact Ecosystem Water Quality" resulted in the committee deciding to take the worksheet with them for completion and submittal to Ron Ott the following week.

EPA requested it be noted that ethnic groups eat different parts of fish than the guidelines account for which is a problem when you are defining what are parameters of concern.

Actions resulting from meeting:

- 1) Committee members will use their expertise to complete the two worksheets titled "Parameters of Concern and their Effect on Ecosystem Water Quality" and "Proposed CALFED Water Quality Actions and Affected Parameters that Impact

Ecosystem Water Quality". The worksheets are to be turned in to Ron Ott by Friday, August 9.

- 2) The CALFED team, by the next committee meeting will
- compile worksheet information on parameters of concern and actions submitted by committee members
 - identify known and potential sources of primary metal parameters of concern (e.g. cadmium, copper, mercury, selenium and zinc) plus others (if necessary based on committee input and results of literature review) that are identified as having a measurable negative impact on the ecosystem
 - compile standards (from basin plans & other appropriate regulations) for parameters of concern
 - compile other available information on parameters of concern including range of numerical values found in different geographical locations and acute or chronic toxicity to Delta species.
 - compile preliminary list of primary pesticides of concern based on known biotic impact
 - identify known and potential sources of pesticides, applicable regulatory standards, and geographic location

Proposed CALFED Water Quality Actions and Affected Parameters that Impact Ecosystem Water Quality

| AFFECTED PARAMETERS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ACTION | BENEFIT | METALS | | | | | | | | | | ORGANICS | | | | NUTRIENTS | | | | OTHER | | | | | | | | | | | | |
| | | Metals | Cadmium | Chromium | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | | | Pesticides (Insecticides, Herbicides, etc.) | Petroleum Related | Other Organics | | Nitrogen (other than Ammonia) | Ammonia | Phosphorous | | | Arsenic | Dissolved Oxygen (D.O.) | Pathogens | pH | Temperature | Salinity (TDS, EC) | Chloride | Sodium | Suspended Solids (SS) | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Expand and extend existing programs to provide incentives for pollution source control on agricultural lands. | Improved instream and Delta water quality. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Establish incentives for retirement of lands with the most severe drainage problems and where cost effective. | Improved instream and Delta water quality, reduces demand for irrigation water. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Manage drainage timing to reduce instream impacts of water quality. | Reduces the concentration of pollutants entering and its tributaries during low flow periods and allows better coordination of discharges and dilution flows. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. Construct wetlands to treat upstream wastewater effluent and Delta agricultural drainage. | Improves Delta water quality by allowing some filtration and reduction in biological oxygen demand to result from constructed wetland treatment. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. Increase enforcement of source control regulations for agricultural drainage to moderately: reduce leachate conc. and vol., restrict spray programs adjacent to waterways, reduce runoff vols., reduce concerns of pollutants in runoff. | Reduces in-Delta and tributary surface water concentrations of pesticides (herbicides, fumigants, fungicides), fertilizers, concentrated mineral salts, and microbial agents from agricultural drainage. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. Coordinate fallowing or retirement of agricultural lands with severe, costly drainage problems with water supply management actions. | Reduces volume of drainage water and constituent pollutant contributions to Delta and tributary surface waters. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. Treat agricultural drainage to remove pollutants, to either be reused or used as part of a localized drainage management practice in coordination with management of drainage timing. | Provides additional dilution flows for improving the quality of receiving waters in Delta and to Delta tributaries. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Proposed CALFED Water Quality Actions and Affected Parameters that Impact Ecosystem Water Quality

| | | AFFECTED PARAMETERS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ACTION | BENEFIT | METALS | | | | | | | | ORGANICS | | | NUTRIENTS | | | OTHER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Metals | Cadmium | Chromium | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | | | | | Pesticides (Insecticides, Herbicides, etc.) | Petroleum Related | Other Organics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Proposed CALFED Water Quality Actions and Affected Parameters that Impact Ecosystem Water Quality

| | | AFFECTED PARAMETERS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------------------|---------|----------|--------|------|---------|------------|--------|----------|--------|--|-----------|---|-------------------|----------------|--|-------------------------------|---------|-------------|--|---------|-------------------------|-----------|----|-------------|--------------------|----------|--------|-----------------------|--|--|--|
| ACTION | BENEFIT | METALS | | | | | | | | ORGANICS | | | NUTRIENTS | | | OTHER | | | | | | | | | | | | | | | | | |
| | | Metals | Cadmium | Chromium | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | | | Pesticides (Insecticides, Herbicides, etc.) | Petroleum Related | Other Organics | | Nitrogen (other than Ammonia) | Ammonia | Phosphorous | | Arsenic | Dissolved Oxygen (D.O.) | Pathogens | pH | Temperature | Salinity (TDS, EC) | Chloride | Sodium | Suspended Solids (SS) | | | |
| 15. Increase enforcement of source control regulations for urban and industrial runoff. | Enforcement of economic penalties can result in improved management practices that can improve tributary and Delta water quality. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. Implement urban wastewater reclamation programs to develop additional water supply. | Can improve Delta and San Joaquin River and export water quality depending on reclamation activity. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. Implement moderate on-site mine drainage remediation measures developed in site specific studies at the Walker Mine, Iron Mountain Mine, Malakoff Diggins, Leviathon Mine, and Penn Mine sites, and other priority sites. | Reduces future tributary and Delta heavy metals loading. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. Encourage management of land uses to protect water quality. | Preserves riparian and aquatic habitats, reduces sedimentation, improves Delta water quality. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19. Study and implement actions to reduce effects of salinity in the San Joaquin River, to maintain water levels and circulation in the south Delta, and to reduce recycled salt load to the San Joaquin Valley. | Better manage flow circulation, increase water stages for the south Delta, improve San Joaquin River and south Delta water quality. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20. Restore riverine channel features in the San Joaquin River upstream of the Delta, including tributaries. | Improves water quality and water supply reliability from the Sacramento River and its tributaries. Improves (reduces) water temperatures. Improves wildlife habitat. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Proposed CALFED Water Quality Actions and Affected Parameters that Impact Ecosystem Water Quality

| | | AFFECTED PARAMETERS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------------------|---------|----------|--------|------|---------|------------|--------|----------|--------|----------|--|--|---|-------------------|----------------|-------|--|--|-------------------------------|---------|-------------|--|--|--|---------|-------------------------|-----------|----|-------------|--------------------|----------|--------|-----------------------|--|--|--|--|--|
| | | METALS | | | | | | | | | | ORGANICS | | | NUTRIENTS | | | OTHER | | | | | | | | | | | | | | | | | | | | | | |
| | | Metals | Cadmium | Chromium | Copper | Lead | Mercury | Molybdenum | Nickel | Selenium | Silver | | | | Pesticides (Insecticides, Herbicides, etc.) | Petroleum Related | Other Organics | | | | Nitrogen (other than Ammonia) | Ammonia | Phosphorous | | | | Arsenic | Dissolved Oxygen (D.O.) | Pathogens | pH | Temperature | Salinity (TDS, EC) | Chloride | Sodium | Suspended Solids (SS) | | | | | |
| ACTION | BENEFIT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21. Implement a comprehensive Delta Long-Term Protection Plan at a moderate level. | Reduces vulnerability of Delta water quality to salinity intrusion. Reduces vulnerability of Delta ecosystem functions to salinity intrusion and inundation. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |